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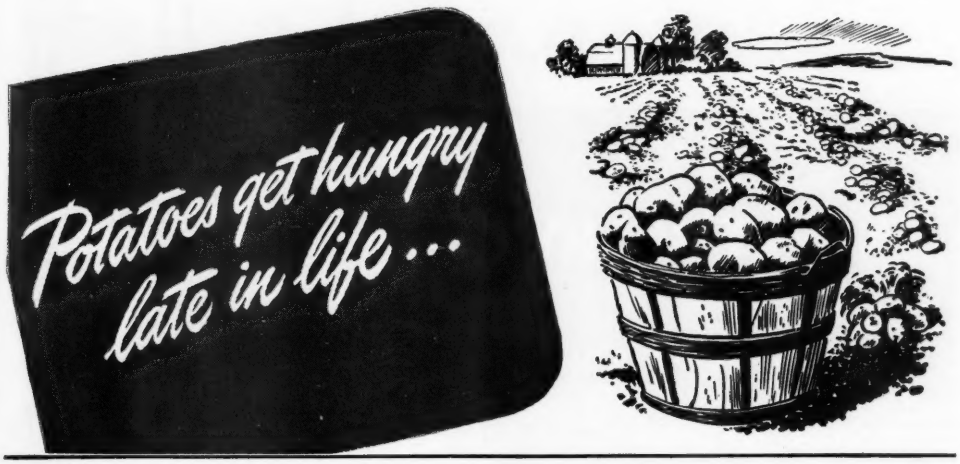

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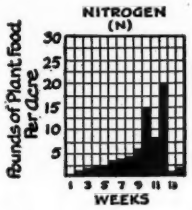

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The American FERTILIZER

Vol. 104 APRIL 20, 1946 No. 8

Phosphate Rock Industry of the Western States in 1945

A NEW high record for the value of the phosphate rock marketed production featured the Western States phosphate rock industry in 1945, when the total value of that sold or used exceeded 1½ million dollars ($1,589,915), according to reports from the producers to the Bureau of Mines, United States Department of the Interior. This, an increase of 18 per cent over the 1944 figure, reflects a higher average value per ton of rock. The tonnage marketed, however (274,198 long tons with a P_2O_5 content of 88,052 tons), was less in 1945 than in 1944 when 298,999 tons, containing 95,767 tons P_2O_5 were sold or used. This was a decrease of 8 per cent from the record high of the previous year, but it still remained greater than for any other year. The production in 1945 came from Idaho and Montana; only development work was reported in Wyoming, and Utah remained inactive. The average P_2O_5 content of the Western States phosphate rock sold or used in 1945 is reported to have been 32.11 per cent, a little above that of 1944 (32.02 per cent).

Montana

Montana continued to be the largest phosphate rock producer of the Western States group in 1945 as in other recent years, its lead over Idaho, however, dropping to only 27,518 long tons. Its total in 1945 (150,858 long tons with a P_2O_5 content of 49,068 tons) was a decrease of 19 per cent from 1944. The average P_2O_5 content was 32.53 per cent, slightly higher than that of 1944 (32.16 per cent).

The Montana Phosphate Products Co. of Trail, British Columbia, still the largest producer in the Western States in 1945 in spite of a marked decrease in production in 1945, operated its Anderson, Anaconda, and Graveley mines as well as several government leases. Most of the mined product was exported to the plant of the Consolidated Mining and Smelting Co. of Canada, Ltd., at Trail, but a considerable quantity was sold in the United States.

The International Minerals and Chemical Corporation operated its property in the Douglas Creek area, Granite County, during the early months of 1945. Considerable phosphate rock was mined. The crude ore was taken to its concentrating plant at Sherryl on the Philipsburg branch of the Northern Pacific Railway, and the concentrates produced were shipped. Lee H. Skeels, trustee for and lessee of the Soluble Phosphates Lts., Maxville, Granite County, Mont., mined a small tonnage at the Master Key mine near Maxville in 1945, ground, and shipped the product for direct application to the soil.

Idaho

A record marketed production of Idaho phosphate rock was made in 1945 (123,340 long tons containing 38,984 tons P_2O_5 content). This was an increase of 8 per cent over the previous record made in 1942 (114,079 tons). The average P_2O_5 content was 31.61 per cent, a little below that of 1944 (31.80 per cent). There were three phosphate rock producing companies in Idaho in 1945. By far the largest of these, the Anaconda Copper

Mining Co., operated its No. 3 mine at Conda, Caribou County. Most of the shipments in 1945 as in prior years, went to the company's plant at Anaconda, Mont., for conversion to superphosphate and phosphate chemicals. A considerable quantity was sold to other domestic consumers. The San Francisco Chemical Co., 216 Pine Street, San Francisco 4, Cal., started operations again at its Waterloo mine, near Montpelier, Bear Lake County, Idaho, during 1945, and mined a sizeable quantity, part of which was sold for the manufacture of superphosphate, and the remainder retained in stock. The Teton Phosphate Co., Montpelier, Idaho, mined phosphate rock from its Bennington mine near Bennington, Bear Lake County, Idaho. This was ground in the company plant and sold for direct application to the soil.

Utah and Wyoming

No phosphate rock was produced in either Utah or Wyoming in 1945. The Garfield Chemical and Manufacturing Corporation, Salt Lake City, Utah, which mined and shipped phosphate rock in 1942, from a Federal lease near Spanish Fork, Utah County, Utah, made no production in 1943, 1944, or 1945. In Wyoming, Mr. John M. Thomas, Cokeville, Wyo., reported only development work at his property near Cokeville, Lincoln County.

The average value per ton of the Western States phosphate rock sold or used, as reported by the producers to the Bureau of Mines, increased sharply in 1945—$1.30 per ton—from $4.50 in 1944 to $5.80 per ton in 1945. There was an increase of only 27 cents per ton in Idaho, but one of $1.98 in Montana.

WESTERN STATES PHOSPHATE ROCK SOLD OR USED BY PRODUCERS, 1941–45

	Idaho			Montana		
		Value at mines			Value at mines	
Year	Long tons	Total	Average	Long tons	Total	Average
1941	97,274	$444,154	$4.57	105,108	$318,588	$3.03
1942	114,079	511,249	4.48	150,402	572,464	3.81
1943	108,916	561,630	5.16	119,764	488,665	4.08
1944	112,565	584,400	5.19	186,434	761,745	4.09
1945	123,340	673,627	5.46	150,858	916,288	6.07

	Utah			Total		
		Value at mines			Value at mines	
Year	Long tons	Total	Average	Long tons	Total	Average
1941	1,340	$8,535	$6.37	203,722	$771,277	$3.79
1942	1,184	7,410	6.26	265,665	1,091,123	4.11
1943	.....	.....	....	228,680	1,050,295	4.59
1944	.....	.....	....	298,999	1,346,145	4.50
1945	.....	.....	....	274,198	1,589,915	5.80

F. T. C. Dismisses Nitrate of Soda Complaint

The Federal Trade Commission has dismissed without prejudice its complaint charging Chilean Nitrate Sales Corporation and the Barrett division of the Allied Chemical & Dye Corporation, both of New York, with conspiring to monopolize the sale of and fix prices for raw nitrate of soda, in violation of the Federal trade commission act. The complaint, issued in April, 1939, also charged the respondents with price discrimination in violation of the Robinson-Patman act.

The order of dismissal states that Department of Justice proceedings involving both respondents have disposed of the conspiracy charges in the complaint and that the commission would not be warranted in proceeding on the price discrimination allegations because of the discontinuance of such practices and the lapse of time since issuance of the complaint.

Trial of the case was held in abeyance during the pendency of the Department of Justice proceedings, and later at the request of the Secretaries of War and the Navy because prosecution of the commission's complaint would interfere with the war effort. Since 1941 the respondents have supplied nitrate of soda only to the government on war contracts and, according to the order of dismissal, have not engaged in the practices alleged in the complaint, and have no intention of resuming them.

Potash Freight Rates Reduced

The Interstate Commerce Commission has reduced rates, effective July 1st, on potash muriate, sulphate of potash, manure salts and sulphate of potash-magnesia in carloads, from Carlsbad and Loving, N. M., to points in the Southwest, the South, Trunkline and New England territories.

The commission reduced rates in the southwest from an average of 15 per cent to 13.5 per cent of the corresponding first class rates. To points in southern territory, except points in Florida, south of Jacksonville and on the route to Jacksonville, it prescribed rates on a distance scale, ranging from $7.35 a ton at 801 miles to $10.90 a ton at 1,601 miles, and $11.40 a ton. To points in New England except in northern Maine, where carriers may add "arbitraries," it prescribed a rate of $11.90.

New Life for Old Land*

Former Waste Product Pitches In to Give U. S. Better Health Standards

By ROBERT WEST HOWARD

OUT of the March fogs, the 338th spring ebbs across the American farm. West of the Mississippi, in the region official government explorers 125 years ago called "the abode of perpetual desolation," it will push up the first wisps of another 800,000,000-bushel wheat crop. In New England, where Jared Eliot warned 200 years ago that the fields had become so poor they "would raise turnips no larger than buttons," it will not only produce turnips larger than calves' heads but a hundred other food and industrial crops. South of the Potomac, where many farms were abandoned as "worn out" before the end of the Napoleonic Wars, spring will not only bring the usual big plantings of cotton, corn, tobacco and truck crops but will find many growers signing contracts with wholesale buyers that guarantee produce quality six months hence.

*Reprinted from "Steelways," 350 Fifth Ave., New York City, April, 1946, issue.

So the assurance of the land's spring runs across the face of America in 1946 . . . 337 years after the first farmers arrived in Jamestown, Va. The day of the "virgin continent" passed a long time ago.

Rich layers of American topsoil have been washed into rivers and oceans. The original covers of forest and matted prairie grasses have been partially destroyed. Yet, in America's 338th spring, the land is prepared to yield more foodstuffs, more clothing materials, more leathers and plastics and legumes and waxes than ever before. It will not only feed and clothe the 140,000,000 inhabitants bloomed from that first Jamestown settlement but will send millions of pounds of its land's varied goodness to the people of Europe and Asia.

And, soil experts say, this must be only the beginning. The soil must go on improving. As the American farm grows older, it must not only produce more foodstuffs and indus-

This "quarry" within a steel plant is actually the ammonium sulphate stockpile, ready to be scooped into bags and shipped to agricultural centers—evidence of the close link between Land and Steel

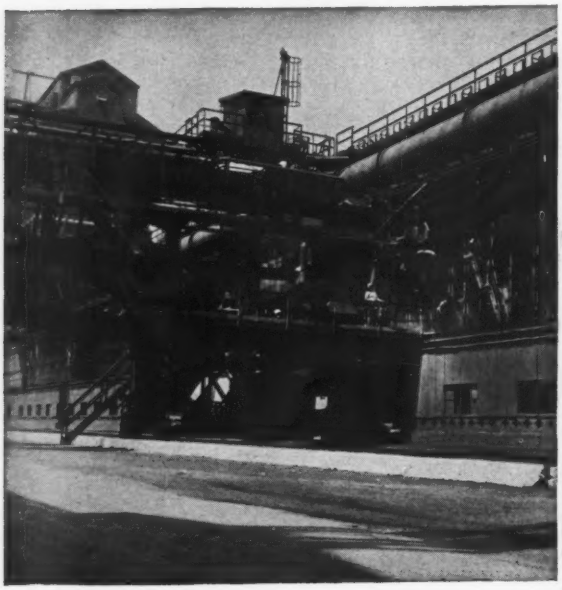
trial raw materials for more people but must raise the general standard of American health in so doing.

The quality of any product is determined by the quality of its materials. This is as true of soil as it is of steel.

Follow the tractors up along the rugged hill lines of New England this month, or out along the fence rows of Indiana and Iowa and Mississippi. The machines lumber along, lazily, looking for all the world as though they were out for a spring-fever hike. Apparently they are simply wandering willy-nilly up and down the fields, blowing puffs of powder on the furrows as they go.

expectancy of every citizen another decade or more, and give doctors a lot more opportunity for a full night's sleep.

Basis of the whole idea, of course, is the fact that the quality of the material conditions the quality of the product. Soil is, after all, nothing but particles of rock and humus that act as carriers of the chemicals upon which plants feed. As crop after crop of corn or cotton or tobacco pushed up from the early American fields, the chemical supplies were used up. The virginal stores of the nitrogen, phosphorus and lime that had developed in the soil since the beginning of time were either burned up in the alchemy of crop pro-



In by-product recovery, gases and vapors are released from coal in modern coke ovens such as these

At end of 15-hour coking period the incandescent coke mass is pushed from the ovens into quenching car

But this is the amble that brings new corn out of the old fields, keeps America's acres as rich as they were 337 years ago and, with skilled manipulation, brings better health to every American than his forefathers had. The powder puffing out across the fields is fertilizer; most men know it as a mixture of lime, sulphate, potash and a few other things, and let it go at that.

Yet fertilizer, its application, its transferred effects on our daily health and disposition, takes on more potent meaning each year. There are those who believe that, with careful study, the day can come when careful application of fertilizer on the land will boost the age

duction or passed into the crops themselves.

So the soil "wore out." The centers of wheat production moved down across New England, into Pennsylvania, on to Maryland and west along the river valleys . . . always on the rush for new stores of nitrogen and phosphorus and potash, leaving behind them leached, lifeless lands that were the despair of early agronomists such as Isaac Hill, Edmund Ruffin, Thomas Jefferson, Eliot and many another searcher for a "land refresher." The search continued while the landsmen poured west to the Ohio country and the open prairie; the tradition grew, "Who says my father wasn't a good farmer? He wore out

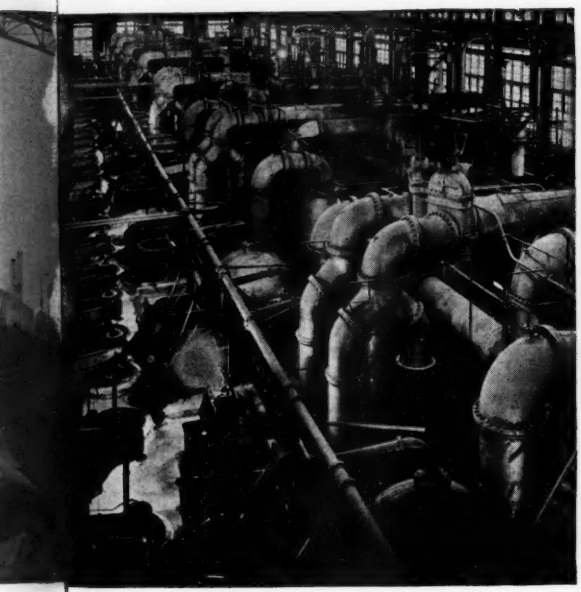
three farms in his lifetime."

Then, 105 years ago in London, a paunchy little German chemist named Justus von Liebig stepped to a lectern and delivered the first of a series of addresses that were to change the whole course of agriculture and, consequently, of human health. Von Liebig had come to the conclusion, after long laboratory experimentation and fieldside observation, that the ammonia formed by the process of animal and mineral decay furnished the raw material through which plants secure their nitrogen. Three years later, on his estate at Rothamsted near London, John Bennett Lawes began a series of field experiments to prove or disprove Von Liebig's theories. His reports, first published in 1847, showed that nitrate of soda and sulphate and chloride of ammonia, when used as fertilizers, all produce marked effects on wheat.

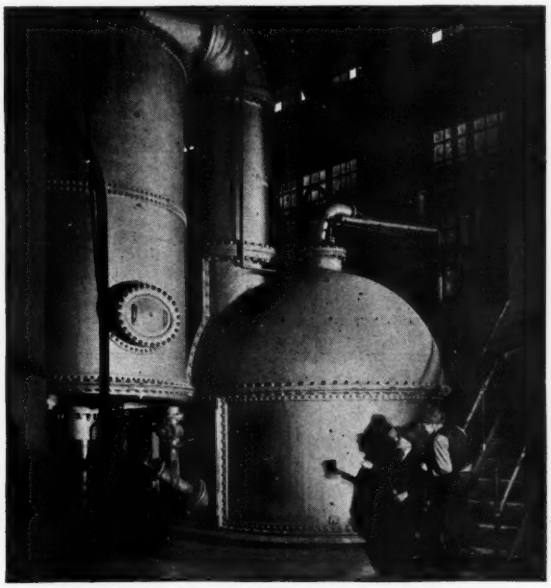
Out of the Lawes' reports grew the modern fertilizer industry. Almost from the beginning the steel industry has played an important part in this development.

The ironmakers of medieval Europe and 19th Century America used coke to smelt molten iron from ore. They obtained the coke by "roasting" coal in open air ovens or pits. Much of the coal's natural gases and tars passed off in the process. The coke was left as residue.

Shortly after Lawes discovered the fertilization properties of ammonium sulphate, the owners of coke ovens in the vicinity of St. Denis, France, began their own experiments. They reasoned, logically, that coal is nothing but prehistoric vegetable matter "cooked down" and squeezed to hardness through millions of years. They thought the basic chemical properties of the trees and plants were probably still present. In 1858 they proved it when they built the first retorts to reclaim ammonia as a by-product of the coking process. From then on it was a simple matter of running the ammonia gas through a sulphuric acid bath to obtain the nitrogen-rich crystals of ammonium sulphate.



Pipes bring in coke gases containing ammonium sulphate. Baskets at left separate sulphate crystals from solution



In this giant saturator, chemical action frees the crystals from the gases pumped in from coke ovens

Today this legacy of "prehistorically modern health" from the coal pits to the land to the consumer is one of the largest by-products of the American steel industry. Approximately 21 pounds of ammonium sulphate are obtained from every tone of coal processed for coke in steel plants and their subsidiaries. By 1939 this process had reached an output of 580,274 tons per year, according to the

(Continued on page 26)

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Farm Real Estate Market Presents Dangers

The continuing rise in farm real estate values, shown in a report prepared by the Bureau of Agricultural Economics, spells danger for farmers and the nation, Secretary of Agriculture Clinton P. Anderson has warned in a statement issued with the report.

In pointing out the significance of the report, Secretary Anderson compared the current trend with the post-war period of 1919 and 1920. He said:

"That experience teaches us that runaway land prices can bring suffering to the entire nation as well as to unfortunate farmers who lose their land and investors who lose their life savings. It reveals the folly of valuing farm land on the strength of a few boom years. To their credit, the majority of our farm people know this and are showing excellent judgment.

"Inflated land prices also deny our veterans their rights to security and opportunity in agriculture. Few veterans can afford to take the risks involved in current high prices for farm land. Continued speculative up-bidding of farm values will only increase the difficulties they face in getting established again in civilian life."

Evidence of mounting prices for farm land and a repetition of the inflation which followed World War I appears in these highlights from the report:

(1) Farm real estate values rose 13 per cent in the year ending March 1, 1946—7 per cent in the last four months—and now stand 71 per cent above the 1935–39 level.

(2) An increasing number of farms are being resold after a short period of ownership, indicating greater speculative activity.

(3) Despite the fact that total farm mortgage debt in the United States has declined and more than half of the current sales are for cash, heavy debts are still being built up on a substantial number of farms as a result of sale. On the average, a debt of 60 per cent or more would equal or exceed the full value in 1941.

(4) Average farm land values for the United States are within one-sixth of the 1920 inflationary peak. Values are now above 1919 levels in 33 states and above 1920 levels in 15 states.

The report also shows that many of the elements which contributed to the "boom and bust" cycle after World War I are present inf today's farm real estate market. Prices o

some farm commodities have continued to rise since the close of the war. The strong demand for farm commodities, both for domestic use and shipment overseas, indicates favorable prices to farmers for this season and the next crop or two. This prospect for continued high farm income and the accumulation of liquid funds available for investment, plus the desire of many veterans and former war plant employees to return to farming, are operating to lift the prices of the limited number of farms available for purchase.

"Farmers as well as prospective buyers of farms should look back to the 1920's and the 1930's to realize the potential dangers of paying too much for farm land," Secretary Anderson commented. "First, there was the 'boom' in farm real estate both during the war and immediately following the Armistice. Land prices kept going up until they reached their peak in 1920. Many farmers and veterans who bought farms then at inflated prices had to go deep into debt. After commodity prices dropped in 1920, many farmers and 'investors' were unable to meet taxes and the high fixed charges of debt service and retirement. Foreclosures and forced sales followed.

"Many of those who struggled along through the '20's were wiped out in the early '30's when farm prices dropped the second time. From one-third to one-fourth of all farms went through forced sales in the next 25 years after the first world war."

The Bureau report showed that farm land values are now more than double their 1935–1939 level in North and South Carolina, Kentucky, Tennessee, Indiana, Colorado, and Wyoming. Land values have been most stable in New England.

New Bemis Booklet

Bemis Bro. Bag Co. has recently issued an instructive booklet entitled *Seven Facts About Low-Cost Protective Packing.* This features the company's waterproof paper-lined textile bags which are used to ship many "hard to pack" products. Among the advantages of this type of container is the protection from gain or loss of moisture, from contamination and loss by sifting, from escape of undesirable odors. This bag is applicable to a number of types of fertilizers and fertilizer materials, particularly those that are hygroscopic or which must be shipped for longer-than-average distances. Copies of this booklet will be supplied upon request to any of the Bemis plants or sales offices.

Albright Elected President of U. S. Potash Co.

Horace M. Albright, vice-president and general manager of the United States Potash Company, was elected president of that company at a meeting of the board of directors on Monday, April 8, 1946. He succeeds the late Henry McSweeney who died March 5th.

Mr. Albright has been connected with the United States Potash Company for 13 years. He is a director of the American Potash Institute, the Potash Export Association and the Huguenot Trust Company of New Rochelle, N. Y., and is a member of the board of directors and executive committee of the American Plant Food Council.

Horace M. Albright
President, U. S. Potash Company

Mr. Albright belongs to an old California and Nevada mining family. He is a graduate of the University of California and is a member of the Bar of both California and the District of Columbia. He served for many years in the Department of the Interior where he was Superintendent of Yellowstone National Park and from 1929 to 1933 Director of the National Park Service.

The United States Potash Company was organized in 1926 by a group of officers and directors of the Snowden and McSweeney Company which discovered the New Mexico potash fields while searching for oil. The United States Potash Company's mine and refinery are near Carlsbad, N. M., and the executive offices are at 30 Rockefeller Plaza, New York, N. Y.

March Tag Sales Show Increase

The trend of fertilizer tag sales continues upward under the stimulation of an expanded farm production program, abnormally large farm income, and relatively low fertilizer prices.

Sales of fertilizer tax tags in March, in the first quarter of this year and in the first nine months of the current fertilizer year, July through March, were at peak levels. The increases over last year were sufficiently large to make it appear likely that, if labor, transportation and materials are available, total consumption in the current fertilizer year, and also in the calendar year 1946, will be larger than in any preceding year.

Tag sales in March, based on reports by state officials to the National Fertilizer Association, were equivalent to 1,460,000 tons in the 16 reporting states.* This represents increases of 7 per cent over March, 1945, and 16 per cent over March, 1944. Increases over last year were widespread, with 12 of the 16 states reporting larger sales this year than last

The trend of monthly tag sales this year, as compared with the trend in 1938–1939, the last pre-war year, brings out the changing seasonal distribution of sales which has resulted from the early buying program. Sales

*A change in the Mississippi fertilizer control law effective in March, 1946, permits manufacturers to make quarterly reports of tonnage shipped in lieu of attaching inspection stamps to each package. Tag sales in this state thus lose their significance. Monthly tag sales are consequently available for 16 states, instead of 17 as formerly.

(Continued on page 24)

FERTILIZER TAX TAG SALES
Compiled by the National Fertilizer Association

State	March				January–March		
	1946 Tons	1945 Tons	1944 Tons	% of 1945	1946 Tons	1945 Tons	19 4 Tons
Virginia	121,236	101,009	74,463	116	288,463	248,065	216,862
North Carolina	296,836	292,216	260,970	109	895,197	822,138	758,540
South Carolina	191,301	196,930	171,675	103	522,510	505,978	487,028
Georgia	272,831	292,404	261,341	101	687,035	679,109	669,899
Florida	62,756	73,290	79,580	110	301,484	274,582	266,722
Alabama	190,600	164,000	161,600	108	507,050	471,000	469,250
Tennessee	75,720	52,875	44,625	133	159,091	119,250	112,310
Arkansas	30,450	21,550	16,775	103	71,950	69,950	71,933
Louisiana	24,450	25,275	45,250	104	91,810	88,086	110,400
Texas	43,265	35,745	33,109	135	135,552	100,125	92,636
Oklahoma	6,748	3,600	2,112	181	21,098	11,662	10,371
Total South	1,316,193	1,258,894	1,151,500	109	3,681,240	3,389,945	3,265,951
Indiana	44,641	34,556	33,275	143	167,617	117,612	123,230
Illinois	23,575	16,850	18,600	136	103,008	75,925	63,550
Kentucky	45,855	29,052	39,173	129	150,938	117,445	103,549
Missouri	28,984	24,628	13,243	142	102,603	72,137	60,189
Kansas	728	710	2,685	87	11,209	12,915	11,856
Total Midwest	143,783	105,796	106,976	135	535,375	396,034	362,374
Grand Total	1,459,976	1,364,690	1,258,476	111	4,216,615	3,785,979	3,628,325

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FERTILIZER MATERIALS MARKET

NEW YORK

Demand for Mixed Fertilizers Greatest in History but Shortage of Materials Curtails Production. Coal Strike Further Reduces Sulphate of Ammonia Supply. Fill-in Orders for All Materials Going Unfilled.

Exclusive Correspondence to "The American Fertilizer"

NEW YORK, April 15, 1946.

The peak of the mixing season finds all fertilizer manufacturers attempting, without success, to obtain additional supplies of raw materials. The demand for mixed goods continues at the highest level ever experienced by the industry, but operations are curtailed by the inability of manufacturers to obtain increased supplies. Production of basic materials is currently at maximum capacity and increased production cannot be expected until new machinery and replacement parts are obtainable.

Export inquiry has become increasingly heavy, but foreign demand remains unfilled except for shipments made through UNRRA.

Sulphate of Ammonia

A further cutback in production is now threatened by the present coal strike. The critical supply situation of the past few months continues and producers are reported to be further reducing current contracts.

Nitrate of Soda

Domestic production has been handicapped by inadequate supplies of soda ash. Imported material is arriving on schedule, but demand has not permitted the accumulation of stocks.

Organic Materials

Some further small shipments of tankage have arrived from South America, but the feed trade has taken all available supplies. Limited production and lack of imports of other organics has confined the movement of these materials to deliveries against old contracts. No relief in the tight supply situation can be foreseen in the near future.

Superphosphate

Production continues to be at the recent record levels. There is no indication that the present tight market will ease, but acidulators are meeting the heavy demand in most areas in spite of some delays in phosphate rock shipments.

Phosphate Rock

Superphosphate producers are calling for supplies above contract commitments, but this additional demand remains unsatisfied in most cases. Inventories above ground are depleted to the point where shipments are being made against current production.

Potash

All plants are producing at maximum capacity, and although some mixers have experienced shortages, the demand for this material is generally being met in a satisfactory manner. Additional buying interest continues to be unfilled, and there is no indication that foreign potash will move to this market before next year.

PHILADELPHIA

Shortage of Raw Materials Slows Down Some Mixing Plants. Demand for All Materials Far in Excess of Supply

Exclusive Correspondence to "The American Fertilizer"

PHILADELPHIA, April 15, 1946.

Scarcity of raw materials still continues and it is reported that as a consequence some fertilizer plants are practically closed down. It is feared also that considerable acreage will this season be obliged to go without the regular and very important early spring application of available nitrogenates. It is hoped, however, that the present cool spell will help this situation somewhat.

Sulphate of Ammonia.—Supply is scant, deliveries are slow, and because of the coal strike the coke oven production has been retarded. Under these conditions inquiries for export are not receiving much attention.

Nitrate of Soda.—Inquiries are far in excess of supply, and while shipments are coming through from Chile in good order, they are late. And it is reported that the production of synthetic nitrate has been cut down due to short supply of certain raw stock.

Ammonium Nitrate.—The production is

A Man and his Mule did a lot of good farming in the early days

As a matter of fact today many farmers adhere to the old methods of farming—yet the results are quite different; they produce a ⅓ to ½ larger crop with the same equipment and labor. This big difference is due to commercial fertilizer.

Today's successful farmer considers fertilizer as important to the success of his crop as the seed he buys—and naturally the fertilizer he selects will be carefully chosen by brand name, manufacturer, and in many cases by the appearance of the shipping sack and the way it is packed.

Fertilizer at its best has a look of quality when it is packed in a container that is attractively printed, clean looking, and neat in appearance.

A large percentage of the producers, packers, and shippers of fertilizer rely upon Raymond Multi-Wall Paper Shipping Sacks to deliver their product to users everywhere.

THE RAYMOND BAG COMPANY
Middletown, Ohio

Manufacturers of

Raymond Multi-Wall Paper Shipping Sacks

said to be good, with much of it going to Europe.

Castor Pomace.—Current deliveries are on old contracts, but the supply is far short of requirements.

Blood, Bone, Tankage.—Production of all of these is below normal, and practically none is at the disposal of fertilizer mixers.

Phosphate Rock.—Situation is practically unchanged from last report. Deliveries are being made direct from production, with no accumulation of inventories, but supply continues short.

Superphosphate.—Production is much heavier than during same period last year, but still unequal to the demand. Exports in 1945 were only about 1,000 tons more than 1944.

Potash.—Muriate is in fair supply with big demand, but sulphate is very short. Shipments are being made only on contracts.

CHARLESTON

No Improvement in Material Situation. Phosphate Rock Demand Being Filled from Current Production.

Exclusive Correspondence to "The American Fertilizer"

CHARLESTON, April 15, 1946.

Organics.—Supplies remain less than demand. Packing house fertilizer products are in limited production because of the current small kill. Sewage sludge producers are shipping from current production with practically no stocks on hand. Imported organics remain unobtainable, due to low U. S. ceilings.

Castor Pomace.—Shipments are from current production against old contracts. None is available for additional requirements.

Potash.—This material still remains extremely tight with very active demand for muriate and sulphate but supplies are still below demand.

Phosphate Rock.—Demand remains heavy and suppliers are shipping from current production. Producers are trying to meet requirements of standing customers and are taking on practically no new commitments. Demand for rock for export is strong, but no additional rock is expected to be exported until the domestic situation eases.

Superphosphate.—Production and use of superphosphate made new records in February and the quantity used in mixed goods reached abnormally high levels. Stocks are low and demand remains strong. Some smaller mixers have had their operations hamstrung for lack of superphosphate to finish off the season.

Sulphate of Ammonia.—Demand for this material is strong but producers have been forced to cut deliveries because of slowing down of oven operations at the steel mills.

Ammonium Nitrate.—Demand remains strong and supplies limited. Exports during 1945 were less than 1944 but some is still being shipped to Europe. Former government plants converted to commercial production are expected to ease the domestic situation later in the year.

Nitrate of Soda.—Domestic production is expected to suffer from the coal strike and the accompanying shortage of soda ash. Imported material shipments have been hampered by labor troubles. Supplies remain tight.

CHICAGO

Order M-390 Modified for Balance of Spring Season. Situation in Both Feed and Fertilizer Organics Still Critical.

Exclusive Correspondence to "The American Fertilizer"

CHICAGO, April 15, 1946.

A modification of Order M-390 has been rendered, permitting nitrogenous manufacturers to use a portion of cattle chrome stock during April, May and June. This means that nitrogenous producers will operate at only 50 per cent of capacity, and will continue until a much greater relief is extended. It leaves the organic market tighter than ever.

Feeders and dealers continue their search

Manufacturers' Sales Agents for **DOMESTIC**

Sulphate of Ammonia

Ammonia Liquor :: Anhydrous Ammonia

HYDROCARBON PRODUCTS CO., INC.

500 Fifth Avenue, New York

for feed, which remains in almost unobtainable position.

Ceiling prices are:

High grade ground fertilizer tankage, $3.85 to $4.00 ($4.68 to $4.86 per unit N) and 10 cents; standard grades crushed feeding tankage, $5.53 per unit ammonia ($6.72 per unit N); blood, $5.53 ($6.72 per unit N); dry rendered tankage, $1.25 per unit of protein, f. o. b. producing points.

Southern Phosphate Moves Sales Offices

On April 22nd the sales offices of Southern Phosphate Corporation will be transferred from 342 Madison Ave., New York City, to the home offices of the Company at Bartow, Fla. The mines and plants are located at Bonny Lake, Pauway and Ridgewood, Fla.

February Superphosphate Production

February production of superphosphate totaled 700,590 tons (basis 18 per cent APA) according to the figures of the U. S. Bureau of Census. Because of the shorter month, this was about 17,000 tons less than January but exceeded the February, 1945, output by 62,581 tons or about 10 per cent. Stocks on hand at the end of February were somewhat less than those on January 31st, as shipments were heavier in all lines.

	Normal 18% APA	Concentrated 45% APA	Base Goods 18% APA
Production			
February, 1946....	632,358	25,694	3,997
January, 1946.....	649,792	25,419	4,086
February, 1945....	587,740	18,560	3,869
Shipments and Used in Reporting Plants			
February, 1946....	711,040	27,902	10,257
January, 1946.....	657,165	22,374	3,040
February, 1945....	587,740	18,560	3,869
Stocks on Hand			
February 28, 1946..	750,599	34,752	10,25
January 31, 1946...	809,927	35,663	16,623
February 28, 1945..	866,945	22,117	12,244

To replace the plant food removed from Oklahoma soils annually by crops alone would require nearly 850,000 tons of high grade commercial fertilizer, Oklahoma Station soils men estimate. The estimate is based on average crop acreages and yields for 1933–1944 and chemical analyses for the portion of the crop removed for sale or for feed. A total of only 24,000 tons of fertilizer was used in 1943, the highest tonnage in the state's history.

CASE HISTORY No. 4

In a series of factual experiences of a group of American manufacturers with Multiwall Paper Bags.

COST COMPARISON

	100 lb. Open-Mouth Fabric Bags	100 lb. Multiwall Paper Valve Bag
Bag cost per M	170.00	92.66
Bag cost per 100 lbs.	.1700	.0927
Labor cost per 100 lbs.	.0029	.0024
Total bag and labor cost per 100 lbs.	.1729	.0951
Saving per bag, paper over cotton		.077
Saving per ton, paper over cotton		1.56

DETAILS OF LABOR COSTS

Fabric Bags	Production per hour	Cost per 100 lbs.
4 men packing and closing at 95¢ per hour	132,000 lbs.	.0029
Multiwall Paper Valve Bags		
4 men operating packers at 95¢ per hour	156,000 lbs.	.0024

CLASS OF PRODUCT PACKED

CEMENT	FERTILIZER ✓
CHEMICALS	FOOD ✓
FEEDSTUFFS	MISCELLANEOUS

PRODUCT CHARACTERISTICS

ABRASIVE ✓	GRANULAR ✓
CORROSIVE ✓	HEAVY
DELIQUESCENT	HYGROSCOPIC ✓
FLUFFY	LIGHT
FREE-FLOWING ✓	VISCOUS

ST. REGIS BAG PACKAGING SYSTEMS are made in a variety of capacities, speed, and manpower requirements to suit specific products and plant layouts. Machines are available in types to meet the special characteristics of a wide range of products, with filling speeds as high as twenty-four 100-lb. bags per minute — with one operator.

A BRIGHT LIGHT AT A DARK MOMENT

Stone Mountain Grit Co., Lithonia, Ga., faced with heavy demand for grit to increase egg production, was bottle-necked by slow packaging and a severe shortage of osnaburg bags. With a packaging crew of 14 men, production averaged only 150 one hundred lb. bags per hour from each of 4 spouts — a total of 600 bags per hour. 6 St. Regis packers to fill multiwall paper bags were installed, and operated in pairs. With a crew of 12 instead of 14 men, production went up to 200 bags per hour per machine — a total of 1200 bags per hour . . . from 60,000 to 120,000 lbs. per hour.

Production Per Man Hour More Than Doubled

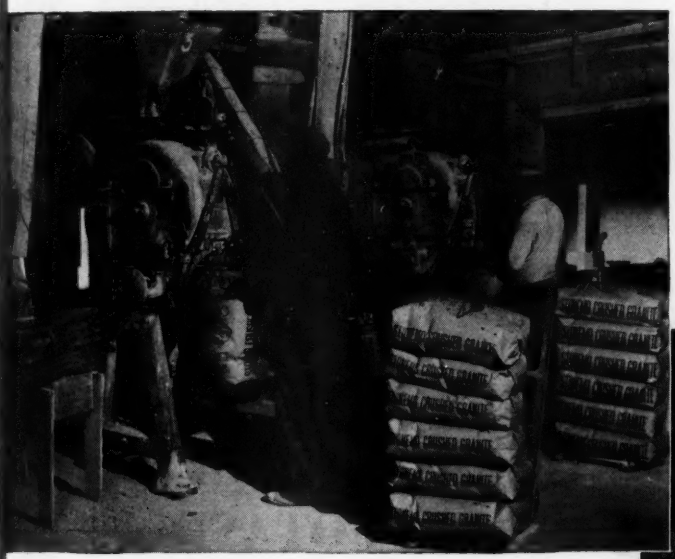
With the St. Regis system, 12 men packed 120,000 lbs. per hour, or 10,000 lbs. per man hour; equivalent to 130% increase of output per man hour, and easier and pleasanter jobs for the entire crew.

Container Costs More Than Halved

The hard-to-get osnaburg bags cost him $150 per thousand. Multiwall paper valve bags cost him $68.40 per thousand. His container costs were reduced by 54.6%.

Consumer Acceptance

Sift-proof paper valve bags assured dust-free, full weight containers which customers readily accepted in place of the former fabric containers.



(Left) A pair of the St. Regis packers in the Stone Mountain Grit Co. plant at Lithonia, Ga.

(Below) Sift-proof Multiwall paper bags are handled easily.

MULTIWALL

ST. REGIS SALES CORPORATION

(Sales Subsidiary of St. Regis Paper Company)

NEW YORK 17: 230 Park Ave. CHICAGO 1: 230 No. Michigan Ave.
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Without obligation, please send me full details regarding "Case History" No. 3, outlined above.

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COMPANY_____

ADDRESS_____

New Edition of A. O. A. C. Analysis Methods

The Association of Official Agricultural Chemists has published the sixth edition of its *Official and Tentative Methods of Analysis*. This volume, which supersedes the fifth edition published in 1940, includes all changes in methods of analysis adopted up to and including the 59th Annual Meeting of the Association in October, 1944.

The opening chapters are devoted to soils, fertilizers, agricultural liming materials and insecticides and fungicides. New chapters have been added on Cosmetics, Enzymes, Gelatin Preparations, Vitamins, and Extraneous Materials in Foods and Drugs.

The book is an important adjunct to every fertilizer plant library, especially to those engaged in laboratory work. Purchasers of the book can arrange to be supplied with reports on subsequent changes in methods of analyses adopted by the Association. The book contains 932 pages, with 76 illustrations and 31 reference tables, and is priced at $6.25 in the United States, $6.75 in other countries. Copies can be obtained from the office of the Association, P. O. Box 540, Benjamin Franklin Station, Washington 4, D. C.

Sulphate of Potash Recovered as Alumina By-product

The U. S. Bureau of Mines has developed a new process for the decomposing of potash alum, which gives sulphate of potash as a by-product in a simple, practicable method of producing alumina from which to make aluminum metal.

This process has been reported by Dr. R. R. Sayers, director of the bureau, to J. A. Krug, Secretary of the Interior. Also reported are earlier laboratory investigations by the Bureau demonstrating how alum crystals of high purity could be recovered from alunite, clays, and other low-grade aluminous materials which occur abundantly.

The new process has two major steps, the dehydration of alum and the thermal decomposition of the dried alum. Four different procedures for dehydrating or removing the water from alum were investigated, and two methods for thermal decomposition of dehydrated alum were tested. The leaching of the decomposed alum with hot or cold water, which dissolves out the potassium sulphate content and leaves the alumina as a residue, is the final step in producing cell-grade alumina suitable for electrolysis and the recovery of aluminum metal.

POTASH
TRONA
SALTS

AMERICAN POTASH and CHEMICAL CORPORATION
122 East 42nd St. New York City

Pioneer Producers of Muriate in America

Branch Offices
214 Walton Building
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MURIATE and SULPHATE of POTASH

Plant foods are urgently needed to grow the crops which feed our nation and our armed forces.

Our plant at Trona, Calif., is operating at capacity to provide supplies of these essential plant foods, and other materials needed in the national effort.

Manufacturers of Three Elephant Borax and Boric Acid

See page 29

print your

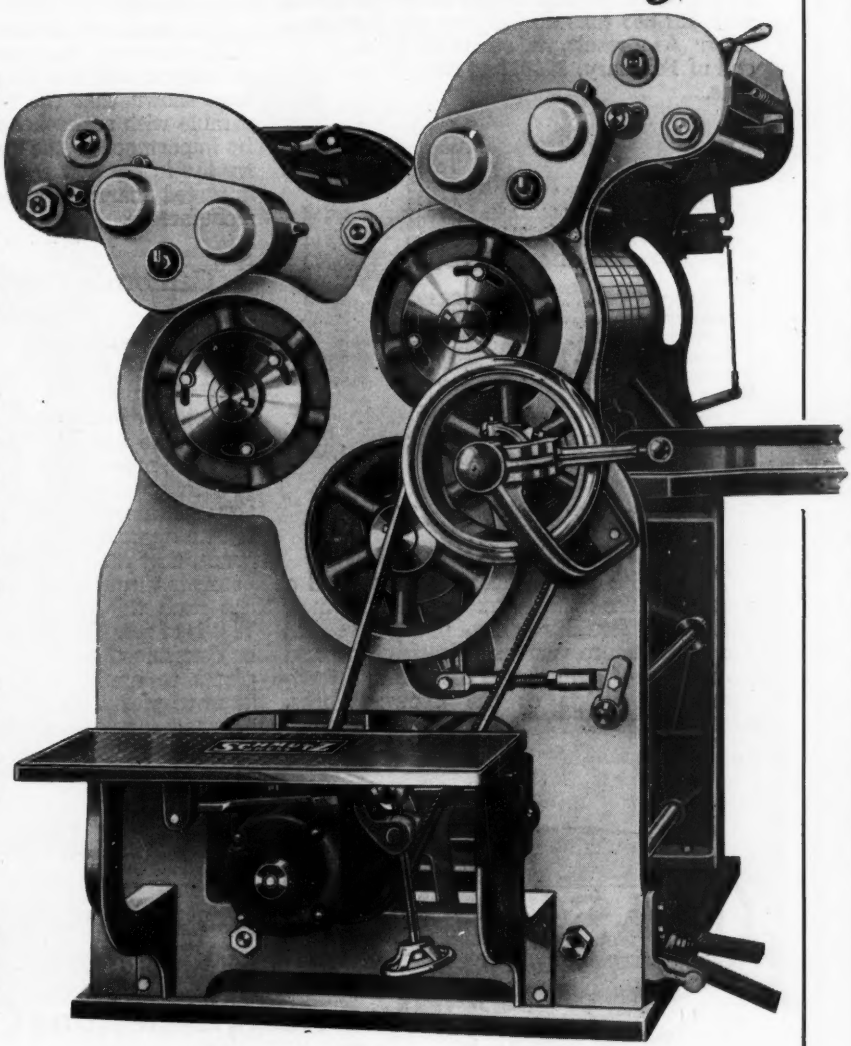
FERTILIZER BAGS

more attractively

This new 1945 Model Bag Printer will print any size or type of bag made of paper, burlap, cotton or paper-lined material. It is built in one, two and three colors.

The highest type of printing can be done with this machine at the lowest possible cost. It will also do an excellent job of printing on used bags.

We are in a position to make prompt delivery on printing plates also printing inks for the Fertilizer industry.



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MFG. CO.
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Louisville, Ky.

CABLE ADDRESS "SCHMUTZ" ◆ LONG DISTANCE PHONE JACKSON 5219

Sulphate of Ammonia Output for January and February

The U. S. Bureau of Mines' figures on the production of by-product sulphate of ammonia for January and February show the devastating effect of the steel strike. Production during January showed a decrease of 35 per cent from January, 1945, while in February there was a decrease of 54 per cent from February, 1945. Thus for the two months, production was almost 58,000 tons under the normal output. Sales during the two months totaled 80,611 tons compared with 151,865 tons during January–February, 1945. As a result, the stocks on hand at the end of February, 1946, had shrunk to 23,651 tons.

	Sulphate of Ammonia Tons	Ammonia Liquor Tons NH_3
Production		
February, 1946	28,576	1,640
January, 1946	43,523	2,074
February, 1945	62,504	2,260
January-February, 1946	72,099	3,714
January-February, 1945	129,835	4,773
Sales		
February, 1946	29,192	1,594
January, 1946	51,419	2,039
February, 1945	75,885	2,186
January-February, 1946	80,611	3,633
January-February, 1945	151,865	4,292
Stocks on Hand		
February 28, 1946	23,651	727
January 31, 1946	24,268	822
February 28, 1945	46,979	1,024

Silico Phosphate, a New British Fertilizer

The British Government has developed a process for the manufacture of a new form of phosphatic fertilizer—silico phosphate—and the manufacture was recently demonstrated to a group of agricultural officials and fertilizer industrialists at the Crown Works, Strood, England.

The process consists essentially of calcinating Kola phosphate rock (fluorapatite) from North Russia with soda ash and silica (sand), resulting in a product containing about 32 per cent of citric-soluble phosphoric acid. The undesirable fluorine is thereby eliminated.

The stages of manufacture may be briefly described as:—Mixing the phosphate and sand; drying the mixture; adding soda ash to the mixture; grinding; nodulising the finely-ground mixture; screening; heating to 1400 degrees C. in a rotating cement kiln; cooling; and grinding.

Pot tests at Rothamsted Experimental Station showed that the availability of the phosphoric acid was adequate, and field tests have shown that the new material is comparable with superphosphate and basic slag. Its importance to the British fertilizer industry lies in the fact that it involved only one imported material—phosphate rock—for its manufacture.

California Tests on Nutrient Absorption

In a recent report on Soil Fertility Research at the University of California, prepared for the California Fertilizer Association by M. E. McCollam of the American Potash Institute, reference is made to data on nutrient absorption by a number of vegetable crops.

With potatoes it has been found that, if they contain 800 parts per million of soluble nitrate approximately five weeks after emergence, that amount is sufficient to carry the potatoes through and obtain high yields. If less than this, the yields will be reduced. This is of practical significance because it can be determined early enough in the life of the plants to apply nitrogen side-dressing and improve yields. The critical level for phosphorus seems to be about 30 parts per million.

PULVERIZED
MASCOT
LIMESTONE
Trade Mark Registered

MAGNESIUM LIMESTONE
"It's a Dolomite"
American Limestone Company
Knoxville, Tenn.

SOURCE OF SUPPLY FOR THE WORLD MARKET...

As spring plowing begins, the tremendous task of raising enough food to feed the hungry world looms before the farmer. He depends more than ever on the good earth of his farm. For here is where healthy, bumper crops begin. He knows so well the importance of crop rotation, drainage, and above all, fertilization. Without rich, fertile ground, all his back-breaking efforts will be in vain.

American farmers rely on your fertilizers, most of them compounded with potash, to give new life to the soil. Potash helps guard against plant disease and drought, insures strong, abundant yields.

In this way, Sunshine State Potash helps the farmer make good ground fertile ground in order to fill the empty storehouses of the world with food.

HIGRADE
MURIATE OF POTASH
62/63% K_2O

GRANULAR
MURIATE OF POTASH
48/52% K_2O

MANURE SALTS
22/26% K_2O

SUNSHINE STATE POTASH
A PRODUCT OF NEW MEXICO U.S.A.
Reg. U. S. Pat. Off.

UNITED STATES POTASH COMPANY
Incorporated
30 Rockefeller Plaza, New York 20, N. Y.

If the content is less than this we have gotten very definite responses to phosphorus.

With lettuce the critical level for nitrate content of the midrib is about 200 parts per million. The critical level for celery at half-growth stage is also about 200 parts per million of nitrate. On the other hand, with lettuce, by the time significant differences in nitrate composition can be determined, it is too late to apply nitrogen to the plant.

Rather complete data are available on total nutrient absorption of lettuce, potatoes, and celery grown with different fertilizer treatments. A crop of lettuce removes approximately 50 pounds of nitrogen per acre, about 18 pounds of phosphoric acid and around 140 pounds of potash. Potatoes at Kern County remove from 125 to 200 pounds of nitrogen, about 60 pounds of phosphoric acid and about 300 pounds of potash per acre. Celery has given the most interesting data on nutrient absorption. In some of our plots over 75 tons of fresh material per acre has been produced. The nitrogen removal averages from 200 to 300 pounds of nitrogen per acre, about 100 pounds of phosphoric acid, while potash removal has been as high as 600 pounds.

Heavy Fertilization Shows Huge Increase on Hybrid Corn

More than double the yield of silage and seven times the yield of ear corn resulted from applications of 700 pounds of 10–10–10 fertilizer on the plow sole together with hill applications of 3–12–12 on the Spangler Brothers farm, Jefferson County, Wisconsin.

Spangler Brothers usually grow only hybrid seed corn but they had one field, where no manure had been used for many years, that was in a very low state of fertility. They decided, therefore, to plant it to silage corn rather than risk hybrid seed.

To test the value of fertilizer on this type of soil, they planted one section of corn on an unfertilized plot which yielded 15,107 pounds of silage and 12.8 bushels of ear corn per acre. Another section planted with only hill applications of 3–12–12 fertilizer yielded 19,338 pounds silage and 41.9 bushels of ear corn. The third plot planted with both hill applications and 700 pounds of 10–10–10 plow sole fertilizer yielded 30,597 pounds of silage and 84.6 bushels of corn, showing the astonishing results from proper fertilization.

At the time of harvest, had this 20-acre field been planted to hybrid-crossing stock all fertilized with plow sole fertilizer, the Spangler Brothers figure it would have made a difference of several thousand dollars in net returns from the field.

MARCH TAG SALES SHOW INCREASE

(Continued from page 14)

in January, 1946, were about three times as large as they were in January, 1939. February sales were more than twice as large as in 1939. March tag sales, however, were below March, 1939, but were slightly above February of this year. There has been a smoothing out of the tag sales curve, and the seasonal peak has been moved ahead. A great deal can still be accomplished, however, in leveling off sales.

Aggregate sales in the 16 states in the March quarter exceeded the corresponding period of last year by 431,000 tons, or 11 per cent. Increases were reported by every state except Kansas, where a small decline occurred.

Comparative figures for the fertilizer year to date are given in the table immediately following. It will be noted that sales in both the South and the Midwest have risen considerably above last year.

Fertilizer Tax Tag Sales
July through March

	1945–46	1944–45	1943–44
11 Southern States	5,522,535	5,045,356	4,921,06
5 Midwestern States	1,121,263	905,100	783,897
Total—16 States	6,643,798	5,953,456	4,704,962

STEDMAN FERTILIZER PLANT EQUIPMENT

Dependable for more than 50 Years

All-Steel Self-Contained Fertilizer Mixing Units
Batch Mixers—Dry Batching
Pan Mixers—Wet Mixing
Swing Hammer and Cage Type Tailings Pulverizers
Vibrating Screens
Dust Weigh Hoppers
Acid Weigh Scales

STEDMAN'S FOUNDRY & MACHINE WORKS AURORA INDIANA U.S.A. Founded 1834

CLASSIFIED ADVERTISEMENTS

Advertisements for sale of plants, machinery, etc., and for help and employment in this column, same type as now used, 60 cents per line, each insertion.

WANTED to purchase—outright or controlling interest in going fertilizer business. Address "170," care THE AMERICAN FERTILIZER, Philadelphia 7.

Maybe we've been too Modest

ABOUT BEMIS MULTIWALL PAPER SHIPPING SACK FACILITIES

For years, Bemis has been a leading manufacturer of multiwall paper shipping sacks. Six plants, strategically located north, south, east and west, have given Bemis customers in the fertilizer industry the advantages of flexibility and capacity in production.

Even in the face of manufacturing and shipping difficulties during the past few years, this flexibility and capacity, plus the Bemis system of planned production, has enabled us to make an unusual record in fulfilling shipping promises and maintaining quality for our regular multiwall customers.

When you need multiwall paper shipping sacks for your fertilizer, think of Bemis. It pays to be a Bemis Multiwall Paper Shipping Sack customer.

Peoria, Ill.

East Pepperell, Mass.

Mobile, Ala.

San Francisco, Calif.

Wilmington, Calif.

St. Helens, Ore.

Bemis Multiwall Paper Shipping Sacks

Peoria, Ill. · East Pepperell, Mass. · Mobile, Ala. · San Francisco, Calif. · Wilmington, Calif. · St. Helens, Ore.

6 PLANTS

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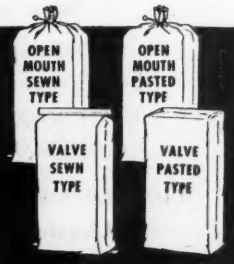

NEW LIFE FOR OLD LAND

(Continued from page 11)

U. S. Bureau of Plant Industry. Then, as the flames of war swept across Europe and both Steel and the Land were called on for unparalleled production, demand soared until, in 1944, coke ovens produced 818,244 tons of the soft, sand-like plant food.

Spurred by realization that the war must be won here before it could be won abroad . . . that every 16-inch shell fired from Corregidor used all the linters grown in a 20-acre cotton patch in one season . . . that healthy sheep meant eventual warmth for fighter pilots just as sturdier vegetables meant greater endurance for Marines fighting in the Pacific jungle . . . farmers put commercial fertilizers to work where they had never been used before.

The whole startling story is neatly condensed in a few sentences of a report recently issued by the U. S. Department of Agriculture. "Usage was 367 per cent of pre-war in the West North Central (states)," the report stated. "It was 243 per cent in the Western, 236 per cent in the East North Central, 204 per cent in the South Central." Iowa used about eight times as much as in pre-war years. Other states with a "very rapid increase in plant nutrient consumption" were Wisconsin, Illinois, Minnesota, Arkansas, Texas, Idaho and Arizona.

It was a strange, largely unrealized teamwork, this 24-hour struggle by the Land and Steel to preserve a way of life, not only with weapons and tools and foods but with health . . . health pulled out of the prehistoric darkness. The farmer worked his tractor by headlight straight through the night. The cokemaker clanked his huge charging machines up and down the oven tramways; 15 hours to the cook; a 16- or 20-ton oven charged or "pushed" every minute, round the clock. In the ragged hill country behind Pittsburgh . . . on the Illinois flatlands . . . in the red loam riverbottoms of Mississippi . . . and flaring red silhouettes against the Rockies and the Wasatch.

The Ammonia Recovery Process

A modern coking plant is like nothing more than a huge loaf of bread, cast in steel and brick. Some of the plants are a mile and a half long. Each "slice" of the loaf is a separate oven, holding a charge of 16 to 20 tons of bituminous coal. These ovens are charged by electric mules running along the top of the structure. The coal is cooked by

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Nitrogenous Materials

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Dolomitic Lime

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COMPLETE FERTILIZER PLANTS

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A Complete Service

THE strategic factory locations of The American Agricultural Chemical Company, as shown on the accompanying map, assure prompt, dependable service for the complete line of products listed below.

We manufacture all grades of Commercial Fertilizers, Superphosphate, Agrinite Tankage, Bone Black, Bone Black Pigments (Cosmic Black), Bone Ash, Bone Oil, Dicalcium Phosphate, Monocalcium Phosphate, Gelatin, Agricultural Insecticides (including Pyrox, Arsenate of Lead, Calcium Arsenate, etc.), Trisodium and Disodium Phosphate, Phosphorus, Phosphoric Acid, Sulphuric Acid, Ammonium Carbonate, Ammonium Fluosilicate, Magnesium Fluosilicate, Potassium Fluosilicate, Phosphorus Pentasulphide, Phosphorus Sesquisulphide (lump), Zinc Fluosilicate, Salt Cake; and we are importers and/or dealers in Nitrate of Soda, Cyanamid, Potash Salts, Sulphate of Ammonia, Raw Bone Meal, Steamed Bone Meal, Sheep and Goat Manure, Fish and Blood. We mine and sell all grades of Florida Pebble Phosphate Rock.

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Chambly Canton, Quebec, Can.
Charleston, S. C.
Cincinnati, Ohio
Cleveland, Ohio
Detroit, Mich.
Greensboro, N. C.
Havana, Cuba
Henderson, N. C.
Montgomery, Ala.
Nat. Stockyards, Ill.
Norfolk, Va.
No. Weymouth, Mass.
Pensacola, Fla.
Pierce, Fla.
Port Hope, Ont., Can.
Savannah, Ga.
Searsport, Maine
South Amboy, N. J.
Spartanburg, S. C.
Wilmington, N. C.

The AMERICAN AGRICULTURAL CHEMICAL Co.

50 Church Street, New York 7, N. Y.

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Montreal, Quebec, Can.
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No. Weymouth, Mass.
Pensacola, Fla.
Pierce, Fla.
Port Hope, Ont., Can.
Savannah, Ga.
Spartanburg, S. C.
Wilmington, N. C.

gases obtained as a by-product from previous coking operations. Fumes, which eventually become tar, pitch, benzol, toluol, plastics, nylon, benzedrine drugs, aspirin tablets and sulphate of ammonia, pass off through cast-iron riser pipes above the oven batteries, then wash down to processing plants where they are separated into their various semi-raw forms.

The ammonia gas given off by the process passes on to batteries of retorts filled with a dilute of sulphuric acid. The gas bubbles through the acid and solidifies into minuscule crystals, no larger than a grain of sand. Scooped out of the retorts, the crystals are "whirl-dried" in a centrifuge machine, then passed on to a rotating kiln-dryer to emerge as a clean, free-running plant food that is approximately 21 per cent pure nitrogen.

After many millions of years, the lush plant life of the Carboniferous Era gives back its nourishment to Twentieth Century health and productivity, and Steel plays the dual role of maker of both tools and plant food for the growers.

Other Plant Foods Needed

Sulphate of ammonia is, of course, only a part of the mineral foodstuff needed to produce crops. Combined by independent manufacturers in a variety of formulas with ground phosphate rock, potash, superphosphate and other vitamin-building materials, it meets varied dietary needs for our many crop types and soils.

Not only is increased use of these minerals essential to farm production in years to come but they can well make up the difference between starvation and plenty, and between illness and health. Ten years ago, Dr. J. G. Lipman of the New Jersey State Agricultural Experiment Station pointed out that only 70 per cent of the nitrogen annually being drawn from the soil through crop production was being returned, and only 40 per cent of the phosphoric acid and 15 per cent of the potash.

"It is hoped," he wrote at that time, "that the data recorded will draw attention to a situation which is of major economic and social significance. The losses of plant nutrients are of such a character as to call for prompt adoption of measures which would offer us assurances of more or less effective conservation and a lessening drain on our resources of plant nutrients."

This dryer basket spins for about ten minutes until the ammonium sulphate crystals are free from liquid

Cable Address: CABESCAR
SCAR-LIPMAN & CO., Inc.
Domestic—Foreign
FERTILIZER MATERIALS—CHEMICALS
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Superphosphate plants. Double superphosphate plants. Ammoniation. Correct equipment for any manufacturing requirement, including provision for transfer and storage of raw material and finished product.

Our service combines consultation, design and erection or remodeling. Acceptance asked only after guaranteed performance is demonstrated.

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Fertilizer plants all over the country—large and small—state their needs and we meet them. Large stocks of seasoned materials and ample modern production facilities enable us to make prompt shipments.

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. . . . WHEN BORON IS NEEDED TO CORRECT A DEFICIENCY OF THIS IMPORTANT SECONDARY ELEMENT

Agricultural authorities have shown that a lack of Boron in the soil can result in deficiency diseases which seriously impair the yield and quality of crops.

When Boron deficiencies are found, follow the recommendations of local County Agents or State Experiment Stations.

Information and references available on request.

AMERICAN POTASH & CHEMICAL CORPORATION
122 East 42nd ST., NEW YORK CITY
Pioneer Producers of Muriate of Potash in America

See Page 20

Out in the short-legged hill country of central Missouri, Dr. William A. Albrecht has been studying soil nutrition at University of Missouri farms for a quarter of a century.

"Right now," he said recently, "we're running short of soil-borne elements. And when we're short of minerals, we're short of basic health. Short of vitamins, too, for we know when minerals in a soil are abundant, vitamins are usually abundant in the plants that grow there. . . . The calcium content of a lettuce leaf can be varied twofold and spinach threefold, according to the calcium in the soil. The same mineral variations occur in the grasses and other plants eaten by domestic animals, and what they eat, in turn, affects our beefsteaks, pork chops, lamb roasts and omelets. . . . One significant medical discovery is that almost any disease can be produced experimentally by faulty food. Today, doctors in increasing numbers are saying that cure alone is not enough. There must be prevention. And prevention starts in the soil."

It has been said that there is no good reason why the average man shouldn't live to be a hundred and enjoy health.

The Task for the Morrow

So the task ahead is very clear for the gases that seep up through the coke ovens, out of the prehistoric forests, and for the potash deposited on the shores of forgotten seas millions of years ago, the sulphur deposits belched out by some great upheaval of nature in the time before man, the limestone formed by drippings of the primeval ooze.

The National Fertilizer Association is authority for the statement that one ton of fertilizer, properly applied today, will yield an extra thousand pounds of beef, an additional 8,000 pounds of milk, an additional 53 bushels of soybeans, or two extra bales of cotton plus 1,900 more pounds of oil-rich seed.

It is a terrific task. In every minute of today and tomorrow and the day after, the land of the United States will produce 111,000 quarts of milk, 95,000 eggs and 33,500 pounds of beef and veal. Yet, our birth rate is rising and, if we develop the health standards we should have, our life span will expand. According to current statistics, an additional 45,000,000 people will live in the United States by 2000 A.D. . . . a total of 185,000,000. They, too, must be fed from the earth . . . fed fully and with an assurance of health.

The only way to accomplish it will be individual and cooperative alertness to the land's needs . . . an annual replacement of minerals "for our own sake." It is a task that breaks down the artificial barriers between farm and industry.

And Steel, nearing its first centennial in the production of prehistorically modern health, pledges its share in this objective, in a great and good future for the American land and for every man.

Ohio Potatoes Need Large Amounts of Fertilizer

To insure big yields of potatoes in Ohio, ample fertilizer is needed, states John Bushnell, Department of Horticulture, Ohio Agricultural Experiment Station.

An experiment with early potatoes at the Ohio Agricultural Experiment Station has demonstrated that 1,000 pounds per acre of an 8–8–8 fertilizer is ample for 250-bushel yields, but to produce 300 to 350 bushels per acre the application must be raised to 1,500 pounds. Early potatoes need to be planted in April as soon as the soil is dry enough to be plowed properly. When the potatoes are planted this early, the young plants must draw upon the fertilizer for their needed nitrogen because the nitrification in the soil is very slow. If amply supplied with either nitrate or ammonia in the fertilizer, potato plants grow very rapidly during cool weather, even better than during hot spells. Consequently, an ample amount of a high-nitrogen fertilizer such as an 8–8–8 or a 6–8–8 is recommended for early potatoes.

For late potatoes, planted in late May or early June, the nitrogen in the fertilizer is not as essential. By late May the soil is usually warm enough so that nitrification will supply part of the plants' needs. Four per cent of nitrogen in the fertilizer has proved to be ample at that time. In some seasons the nitrification in a porous soil has supplied all the nitrogen needed so that an 0–12–12 has given as good yields as a 4–12–12.

In short, the amount of nitrogen needed in the fertilizer depends upon the temperature of the soil at the time of planting.

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Nitrogen Products, Inc., New York City

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A Classified Index to Advertisers in "The American Fertilizer"

BUYERS' GUIDE

For an Alphabetical List of all the Advertisers, see page 33

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International Minerals & Chemical Corporation, Chicago, Ill.
McIver & Son, Alex. M., Charleston, S. C.
Scar-Lipman & Co., Inc., Irvington, N. J.
Schmaltz, Jos. H., Chicago, Ill.
U. S. Phosphoric Products Division, Tennessee Corp., Tampa, Fla.
Virginia-Carolina Chemical Corp., Richmond, Va.

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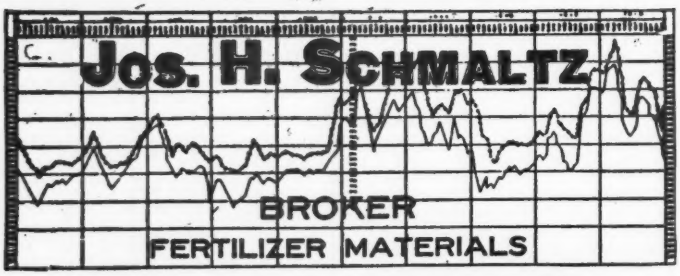

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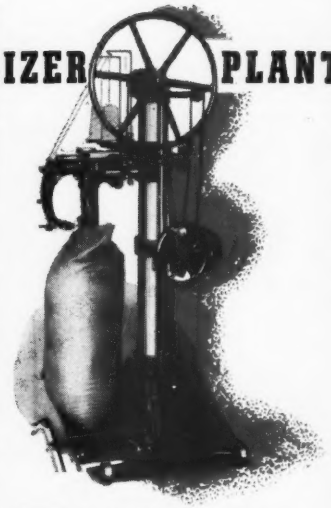

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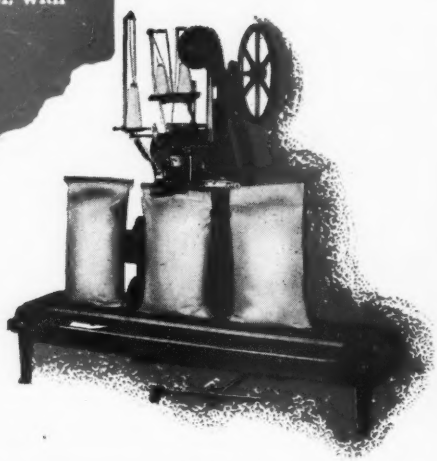

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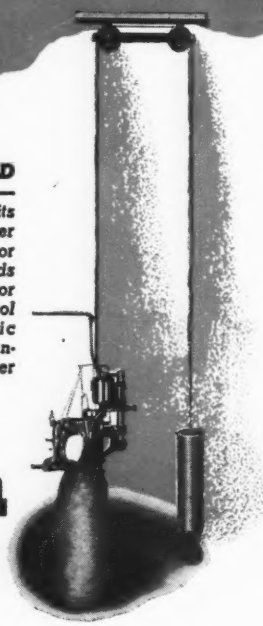

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